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ADAPT OR DIE: AN INVESTMENT WORLD DRIVEN BY QE, TWEETS, CLOUDS, ROBOTS, SINGULARITY AND LUDDITES

By Jordi Visser, President & CIO

We have all heard at some point that people do not like change. The brain likes routines. Parents are taught to provide routines for their babies to create a low stress environment. Routines keep you within your comfort zone, where it's safe and familiar. Routines provide predictability which, in the investing world, helps with the bias for the majority towards momentum or trend following. Extrapolating the present into the future is difficult for us as people to avoid. The easiest guess for the future is to take today's problems or successes and assume they will continue. In a linear world where technological change happens at a slow enough pace to not be disruptive, it's fairly easy to adjust when things change. In an exponential world, technological change happens quickly and can be very disruptive; it becomes far less predictable and people have difficulty adjusting. Over the last few years, it feels to me like people, companies, governments and markets have been adjusting, or rather adapting, to a world where technology's impact is difficult to comprehend. This was one of the themes in the movie Moneyball and as Brad Pitt said to Philip Seymour Hoffman, "Adapt or die."

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CHINA

Over the course of 2004-2007, it became clear to me that China's growing influence on the world would affect GDP, trade, foreign exchange and commodities in a way not seen before. And it would likely last for decades to come. The law of compounding very large numbers forced me to visit the country one month each year to get a sense for what this growing force meant to investments, global growth, monetary policy and geo-politics. The macro evidence was clear to me, however, I was learning that much of what was written in the media about China had a bias to it. Predicting the end of China's growth would likely be as easy as predicting the end of the U.S. consumer. From an investment perspective the focus was on China's urbanization, its growing thirst for food and energy, its love of luxury items and its influence on emerging markets growth. These trends continued through the 2008 financial crisis and into early 2011 until inflation and moves to tighten the housing market forced China to slow its growth rate moving forward. On my last visit to China in May 2012, it seemed evident to me that although the stories about housing bubbles and empty cities were on-going media hype, the reality was China needed to adapt to a new world. China's economy has downshifted in a meaningful way and, as it moves towards more consumption based growth and away from heavy, commodity driven infrastructure growth, it will likely never see again the growth rates of the past. China's most recent five year plan, detailed in the link below, highlights the moves China has made toward innovation and emerging industries with a focus on health, energy, technology and the environment. The Chinese are choosing, or rather being forced, to adapt.

China's Five Year Plan

As someone who tries to apply sector investments to macro trends and, more importantly, to business cycles, I began to see China's shift in 2011 reflected in sector performance. Goldman Sachs created indices from their Wavefront group to reflect macro moves within the equity world. One of these is the Goldman Sachs Turbo Growth Index which is a representation of economically sensitive cyclicals over defensive groups. Exhibit 1 shows the Turbo Growth Index overlaid with the SPX. From early 2003 to early 2011, there was a high correlation between the two and then it started to break down.

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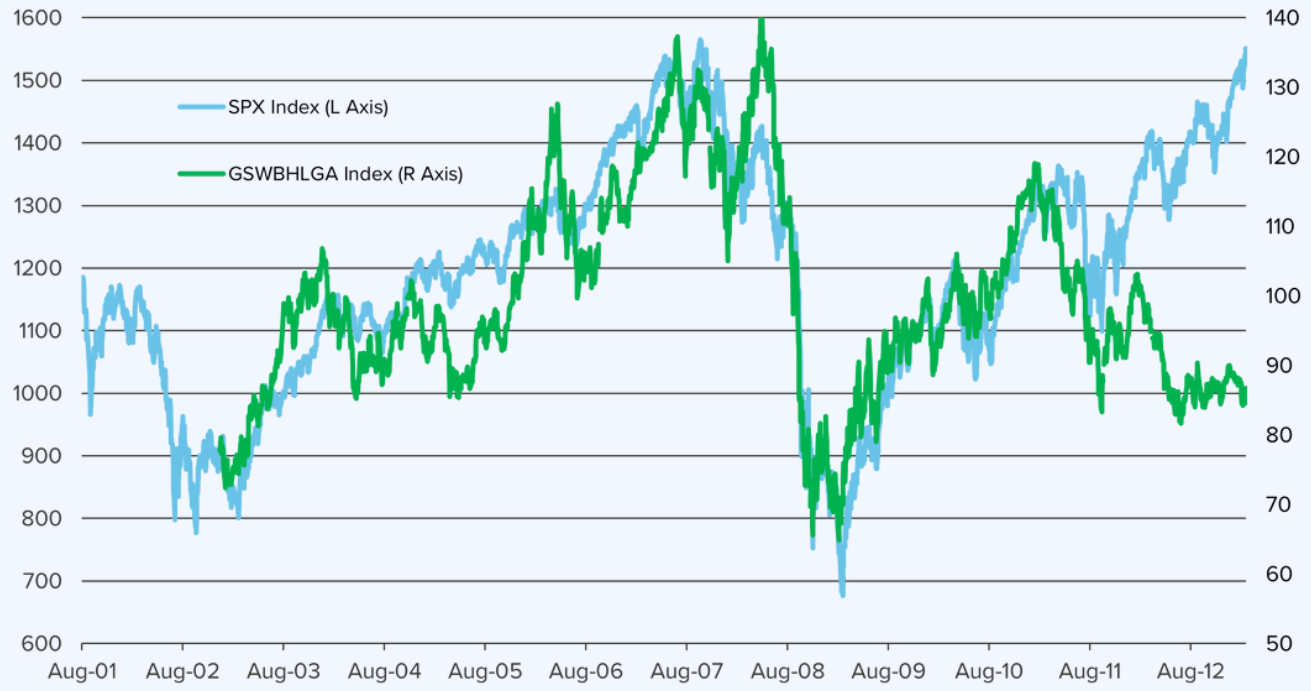
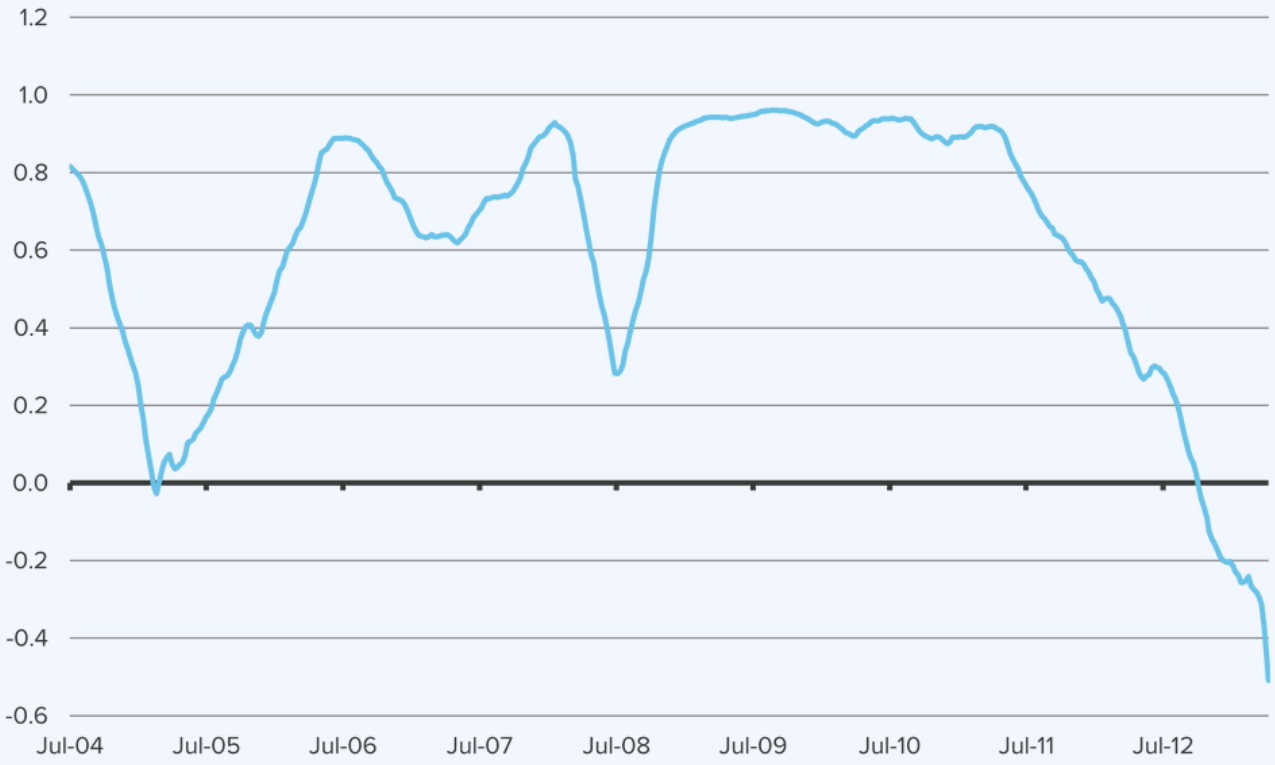
Exhibit 1: Turbo Growth Index vs SPX



Source: Bloomberg

Exhibit 2 shows the rolling correlation to highlight this breakdown.

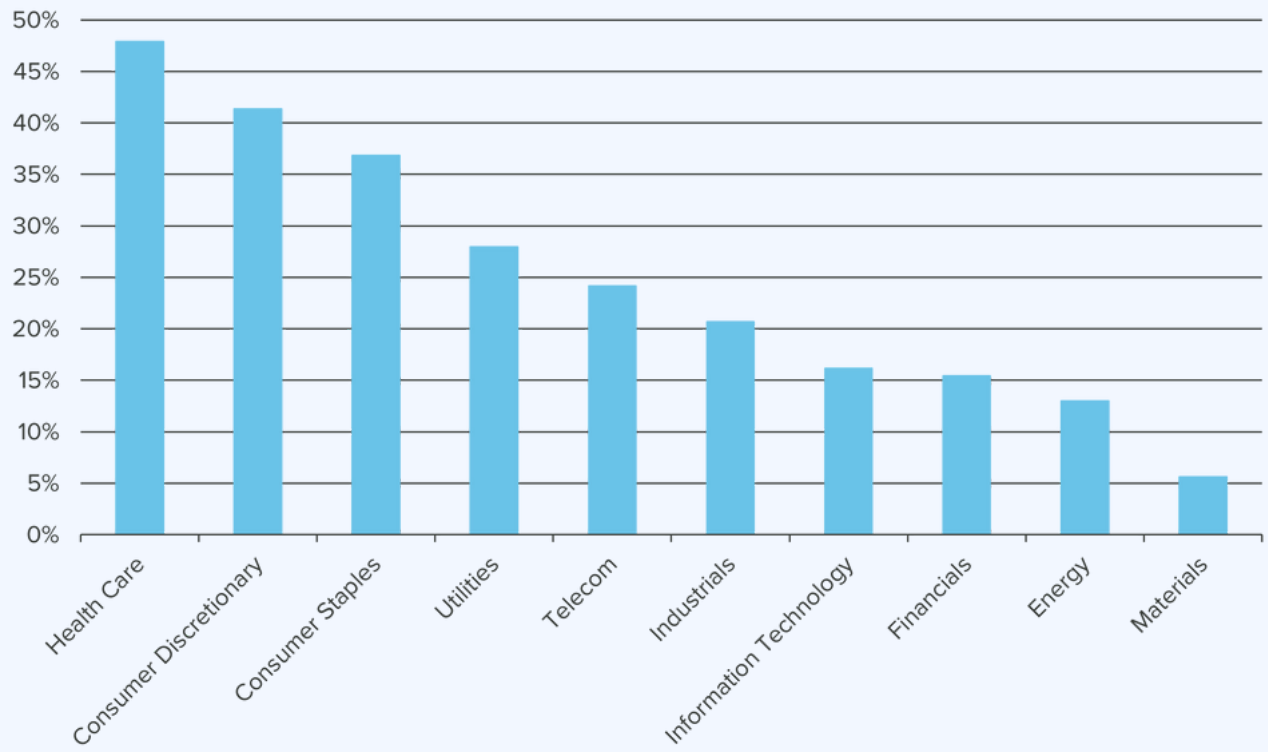
Exhibit 2: Rolling Correlation of Turbo Growth Index vs SPX



Source: Bloomberg

Exhibit 3 shows the sector performance from early 2011 through April 9, 2013. As the SPX rallied approximately 25%, industrials, energy, materials and technology have all underperformed while healthcare, utilities, telecom and consumer staples have outperformed. Something changed.

Exhibit 3: Sector Performance Breakdown Jan 1, 2011-April 9, 2013



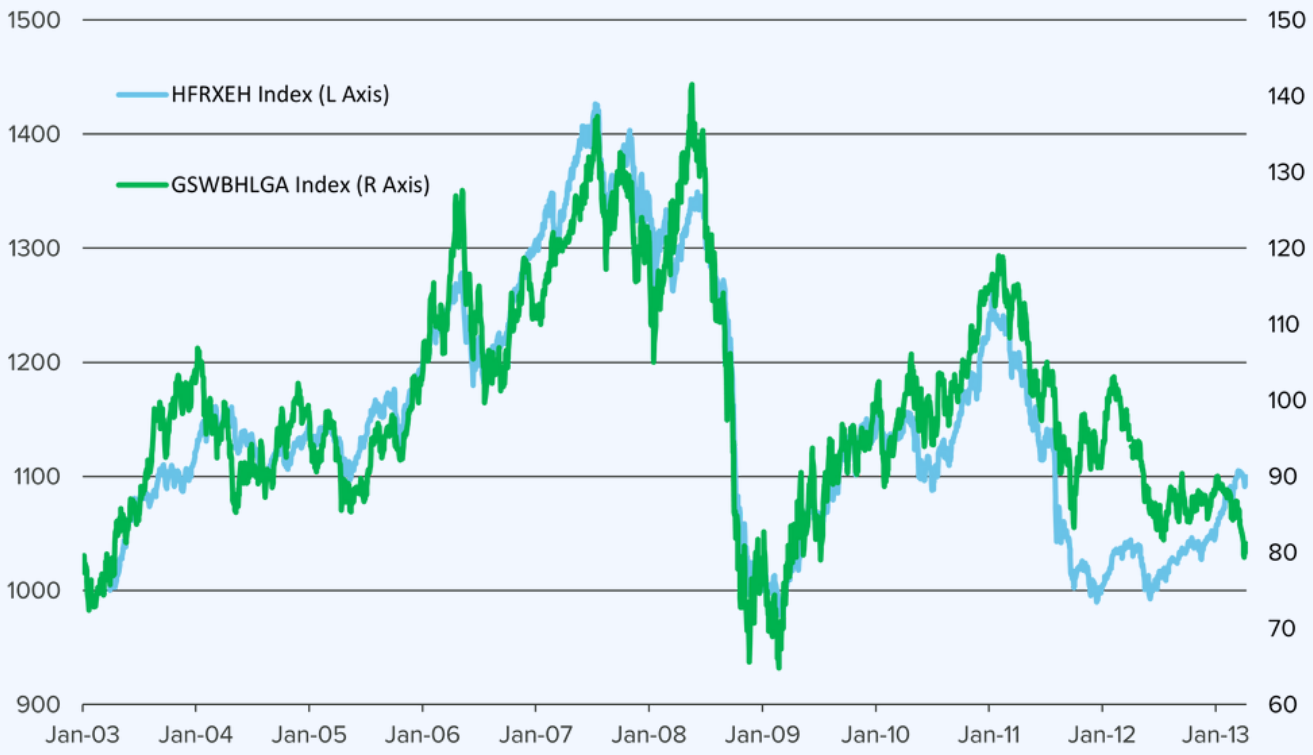
Source: Bloomberg

This notable break in correlation in 2011 led me to the question of what was driving it. Not only is this question important for what's happening in the world today from a growth perspective but also for hedge fund returns. Overall hedge fund performance has suffered relative to the SPX. Exhibit 4 shows the historical relationship between hedge fund returns (Hedge Fund Research Inc.'s Equity Hedge Index) and this Turbo Growth Index. Many hedge funds make money investing in growth. But if growth stocks underperform large cap defensive stocks, performance suffers. The change in China was clearly a contributing factor, however, even though China's growth rate slowed, it was still larger than it was in the early 2000s so China's annual contribution to global GDP would still be important and meaningful.

SINGULARITY THEORY

Over the years, I've met many people with great insight into China in "out of the box" ways and one of them is a senior military person in the Air Force. It's always interesting to ask people in the military what they're focused on as it leads to interesting, forward looking conversations. He gave me insight into China from a geo-political perspective while I tried to help him understand China's importance to capital markets and what that meant for rates, given the growth of bad budgets in the developed world. When we met again in late 2011 and our conversations started moving away from China as we both agreed China was changing its GDP focus to the service sector. He mentioned that the military was starting to focus more and more on something called "singularity theory". He alluded to the impact it was already having on the military and global security and how he thought it would ultimately alter day to day life in general. I had never heard the phrase. He suggested a couple of books which he thought might answer some questions on how the military was now looking at its business and, more importantly, the impact it was going to have on the future of the country.

Exhibit 4: Turbo Growth Index vs. HFRX Equity Hedge



Source: Bloomberg

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Singularity theory led me down a futuristic path to the technological crossing point between machine intelligence and humans. Look deeper into singularity theory and you will find that it has been a controversial topic for years, even as far back as the Manhattan Project. The fact that the military was now talking about it as a reality gave it its initial credibility. But it wasn't until after I was directed to Singularity University and the Singularity Institute that my interest grew. I realized quickly it was best to leave the debate of artificial intelligence's impact on humans to the futurists. Rather, my interest was in the backbone of singularity which is centered around Moore's law and the idea that the doubling of computer processing power every two years, and the resulting exponential increase in computing power, could very well be affecting asset markets and sentiment. Below are two links to books which helped me the most in connecting the dots between singularity and the markets and economy.

At the same time I had begun my reading on singularity I was invited to a presentation by a technology company at the Javitz Center. I learned how large, established companies were adopting means by which to expand the global reach of their sales through technology, all while keeping costs down, and incorporating this innovation into their customer service platforms. Most importantly, there was an enthusiasm in the room from both the company and the investors about growth. When I looked closely, this was a large company with rapidly growing top line growth in a world without growth. Clearly this had been the experience with Apple and Amazon but after screening the market for large companies able to produce fast, top line growth in an economic environment with little to no GDP, it was surprising that there was this many of them. These companies were finding ways to have their large businesses see profit break away from the historical relationship with nominal GDP. How could so many of these companies grow rapidly during the "Great Recession"? Was it possible that technology was impacting the calculation of GDP? Below are links to papers by Alan Greenspan and Brent Moulton from the Bureau of Economic Analysis on this question. I've highlighted two excerpts from the Greenspan speeches that resonated with regard to calculation difficulties and the impact of innovation. Below the two excerpts is the Wikipedia page on GDP illustrating the complex assumptions and quantifying art embedded within the calculation.

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Remarks by Chairman Alan Greenspan - October 1996
Remarks by Chairman Alan Greenspan - January 2000

“While there can be little doubt that major gains are being made in today's market in the quality, choice, and availability of goods and services for American consumers, it is also clear that we measure these trends rather poorly. To measure productivity and standards of living we need measures of output but, to measure output, we need to be able to define products clearly and in terms of units that do not change from one period to the next.

These conditions hold, more or less, for electrolytic copper, for cold rolled carbon steel, and for certain types of coal. In these cases we can define reasonably well the unit of output and, accordingly, can know the price per unit.

But what is the unit of software? What is its price per unit and how does that price move from one period to the next? Also, we know that we are expending an increasing proportion of our gross domestic product denominated in current dollars on medical services. But what is the physical equivalent unit of output of medical care? What is the true price trend for the removal of cataracts, when the technology and the nature of the whole procedure is so dramatically different from what it was, say, forty or even twenty years ago? How does one price procedures when there has been a shift toward less invasive arthroscopic surgery? How does one evaluate the changed aftermath of such procedures on the day-by-day lives of patients?”

“When we look back at the 1990s, from the perspective of say 2010, the nature of the forces currently in train will have presumably become clearer. We may conceivably conclude from that vantage point that, at the turn of the millennium, the American economy was experiencing a once-in-a-century acceleration of innovation, which propelled forward productivity, output, corporate profits, and stock prices at a pace not seen in generations, if ever.”

Gross Domestic Product

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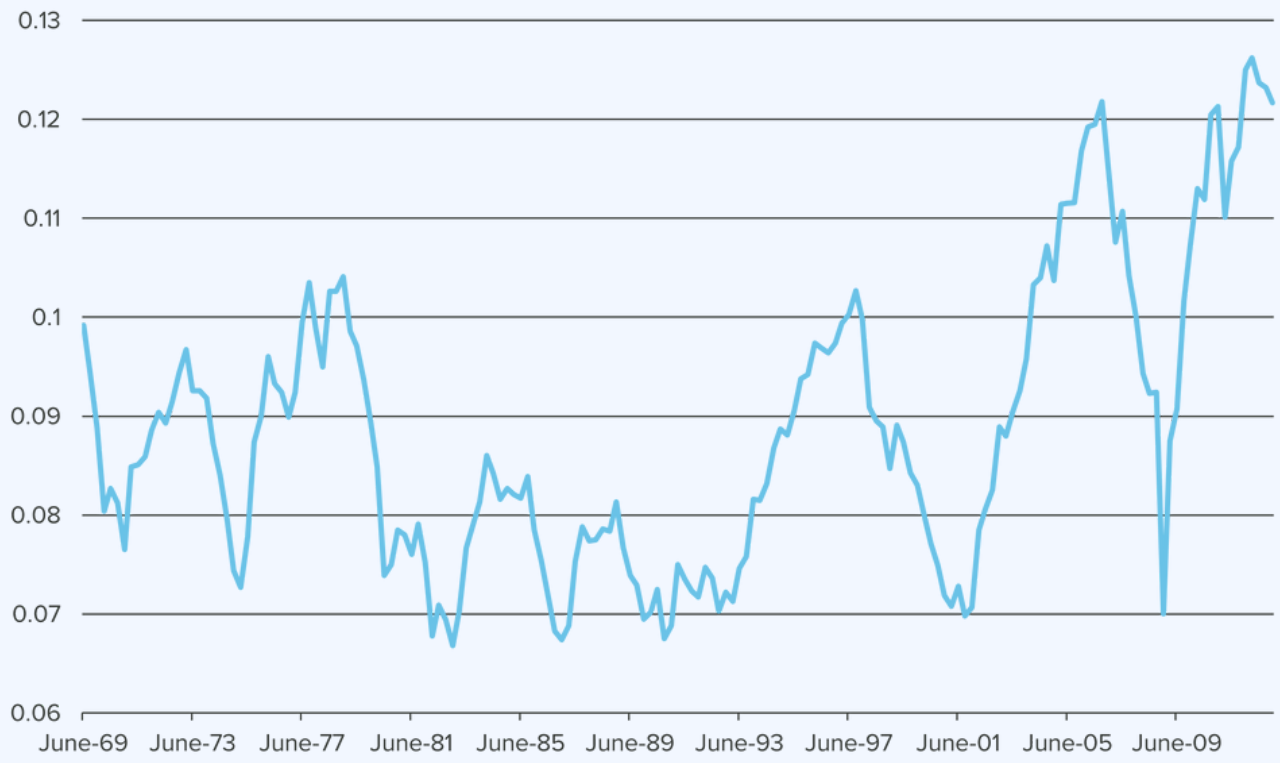
There are many more papers and thoughts on the internet describing the difficulties of capturing technological innovation into a GDP calculation. Putting art into a number is hard enough but with exponential changes in innovation, it is near impossible. The deeper I went, the more comfortable I became in my belief that looking at how assets should move based on GDP would become less and less correlated than in the past. I thought of GDP as having two components. The first was the traditional brick and mortar GDP, where the historical high for nominal GDP occurred in the 1970s, a time not thought of as a particularly good economic period. The second was the digital economy.

If, in fact, GDP is no longer a good measure of whether the country is "growing," what would happen to historical investment relationships? If the digital economy was growing exponentially we would have to see it somewhere in the statistics of the country. The headline real GDP number could be misleading. Still, GDP can be broken up into a production, income and expenditure approach. In looking through where exponential innovation would lead, I decided the focus should be on inflation. For the last five years, people in the world have become obsessed with the inflation vs. deflation debate. If the central banks are going to print, then inflation is inevitable. If the central banks don't print and the private sector de-levers, we would have deflation. As my reading on singularity theory advanced, it became more and more apparent that exponential innovation was deflationary. If this force was increasing at a rapid pace and central banks were increasing their QE at a rapid pace, we have an inflation force being offset by a deflation force. I thought of these two offsetting forces as a battle between top line and bottom line. QE was helping keep growth higher and technology was keeping wages, inflation and interest rates lower. Embedded within the income approach to GDP are corporate profits and wages. The two charts below show wages relative to GDP and corporate profits relative to GDP since 1969. Wages relative to GDP are declining while profits relative to GDP are increasing and near all-time highs.

Exhibit 5: Wages vs. GDP

Source: Bloomberg

Exhibit 6: Corporate Profits vs. GDP



Source: Bloomberg

Exhibit 7: Corporate Interest Rate Fluctuations vs. US Economic Growth

Source: Bloomberg, St. Louis Fed

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There are many who are expecting corporate profits to mean revert. Not only does Exhibit 6 show profits relative to GDP staying near highs, it also shows higher highs and higher lows dating back to the early 1980s. Although some of this can be explained by foreign profits growing for U.S. companies, falling interest rates and corporate taxes, it is also the period in which computers started having a larger impact on businesses and consumers from both a revenue and expense perspective. Since the acceleration of the impact of computers in the early 1980s, we have seen a continued drop in nominal GDP, inflation and interest rates (Exhibit 7 from Bloomberg). Throw in declining wages and you have the main arguments for why profits are not mean reverting relative to GDP as in the past. I think another likely problem is the fact that companies and investors are responding faster to the move toward the digital economy, where profits are growing fast, and away from the brick and mortar economy where growth is close to zero. Regardless of what the true reason is, in my opinion, technology is being very disruptive to the historical relationship between profit growth and nominal GDP.

ADAPTATION

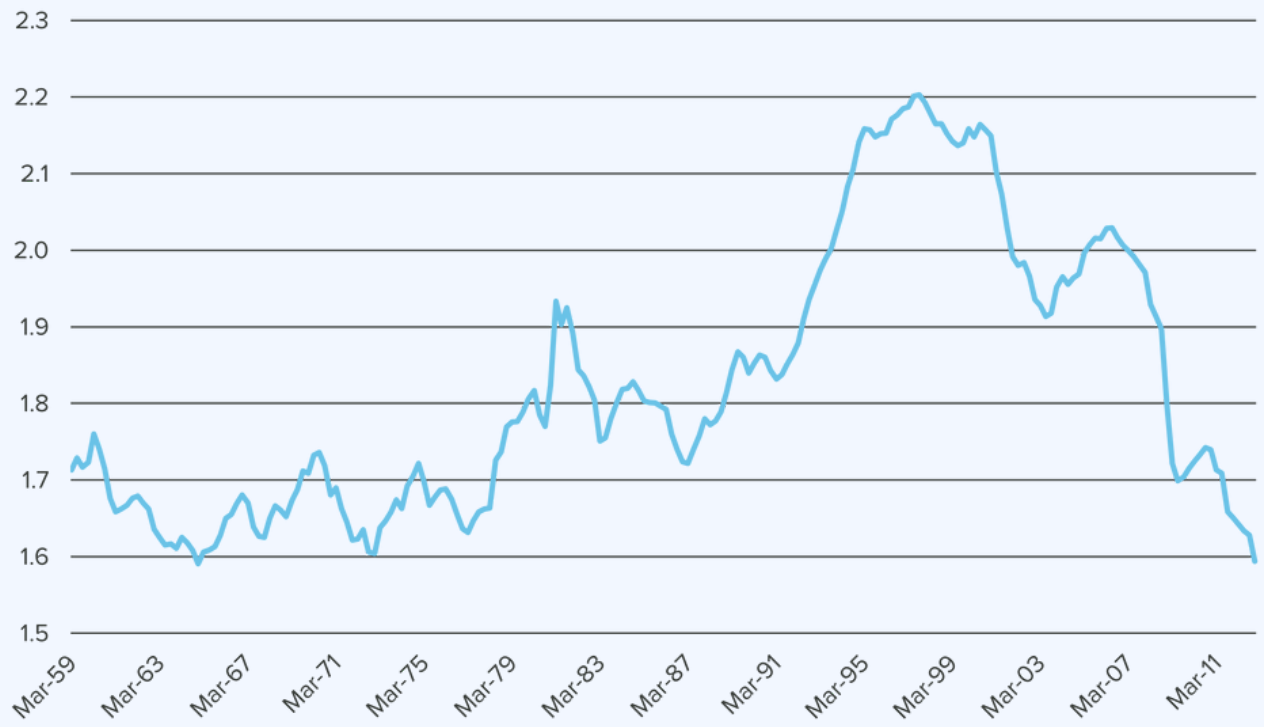
For business leaders and investors, I believe this technological disruption is the main cause driving the lack of risk taking. No doubt that government regulation has had an impact, but the government pendulum swings back and forth over time so this is nothing new. I do, however, think the world is having difficulty adjusting to the switch from a brick and mortar linear world driven by leverage to a technological world where nominal GDP is lower and change happens quicker. Joi Ito, Director of the MIT Media Lab, speaks publicly about the difficulty of companies in this day and age where there is less predictability in the future.

"I don't believe in futurists that much anymore - they are usually wrong," he says, responding to a label that is often applied to him. "I'm calling myself a 'nowist,' and I'm trying to figure out how to build up the ability to react to anything. In other words, I want to create a certain agility. The biggest liability for companies now is having too many assets; you need to learn how to be fluid and agile."

This need for agility can be seen most clearly within the technology industry when it comes to the rise of tablets, smartphones, cloud computing, apps and software and the decline of hardware. An example of this in the brick and mortar world can be seen in the energy sector. It was only six years ago that oil was approximately 150 and peak oil was the talk of the market. The U.S. was in large trouble due to reliance on foreign oil. Companies leveraged up their balance sheets to drill at depths and in conditions never attempted with the belief that oil prices would continue higher. Then, in late 2012, the IEA released a report predicting the U.S. could overtake Saudi Arabia as the largest oil producer by 2017 and become a net exporter by 2030 on the back of new technology helping to unlock oil and gas from shale rock. In a linear world, you have time to adjust but in a world of change, bad decisions are costly.

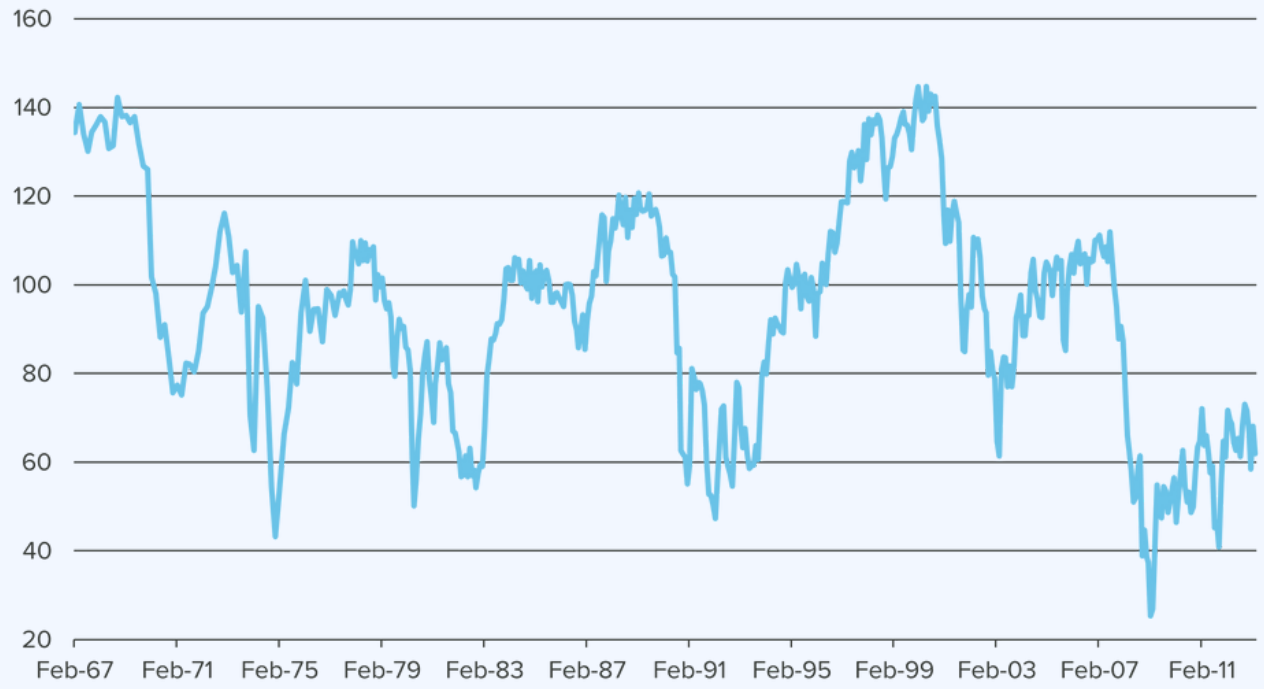
Ironically, adapting to a world where change happens quickly will take some time. During this time of adaptation, I expect business leaders and investors to remain scared about taking risk. We are taught from the day we are born that routines create comfort. “Markets like certainty” is a phrase often heard, so a world with less predictability will likely lead to continued frustration. Company leaders and individuals will continue to blame the government. Governments will continue to blame each other. There is a positive side to this though and I believe the markets are just beginning to see it. As I mentioned above, there are two forces at play here for assets. Central banks are providing liquidity and technological innovation is offsetting the expected inflation jump. This is causing a gradual move out on the risk curve. Despite the widely held belief that markets move on a mathematical formula like PEs or based on GDP, in the end markets often move based on psychology driven by hope, greed and fear. The central banks of the world are all scared of the low growth world and are likely to continue to try to get investors and businesses to take risk. Exhibit 8 reflects their lack of success in that goal so far. U.S. M2 velocity is at the lows of the last 50+ years and declining. Exhibit 9 shows consumer confidence. These charts have had a very similar pattern since 1980. People are scared but there’s a lot of money already in the system with more to come. Much of that money is in zero yielding instruments. The question everyone is asking is, when will the great rotation begin?

Exhibit 8: M2 Velocity



Source: Bloomberg

Exhibit 9: Consumer Confidence



Source: Bloomberg

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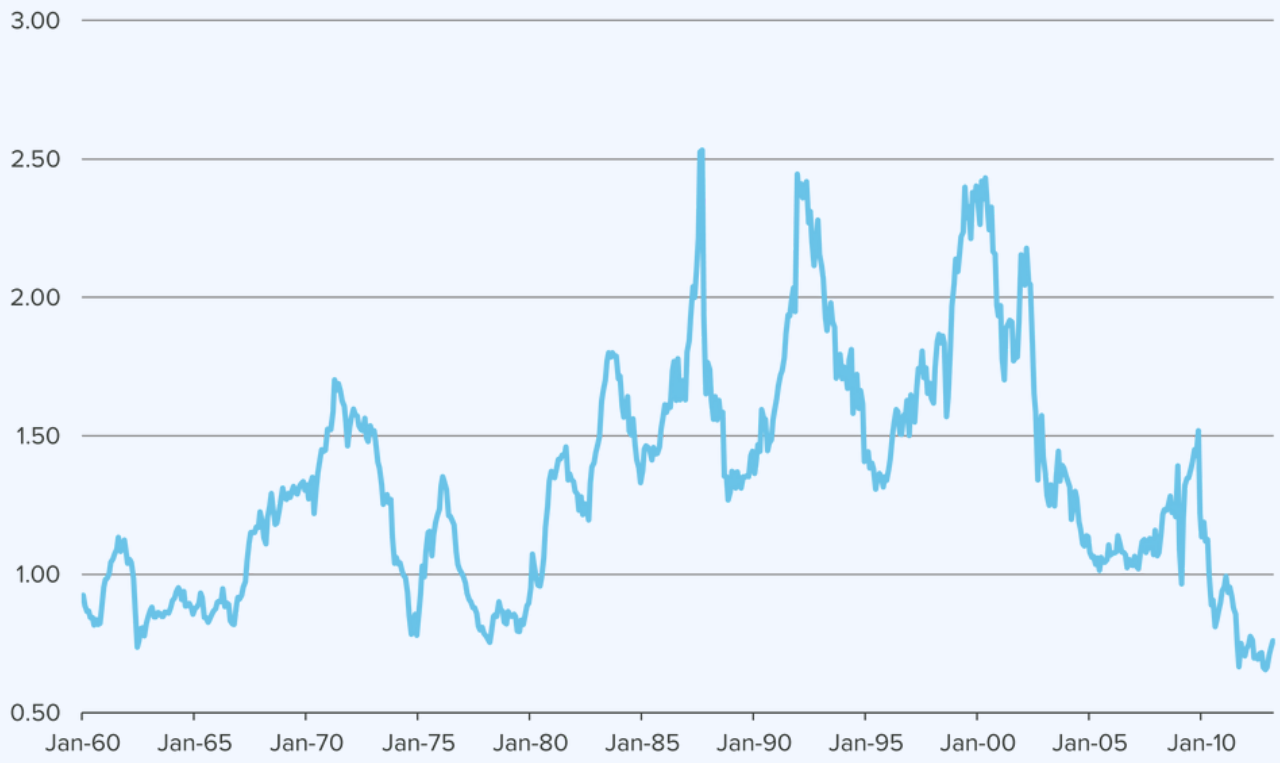
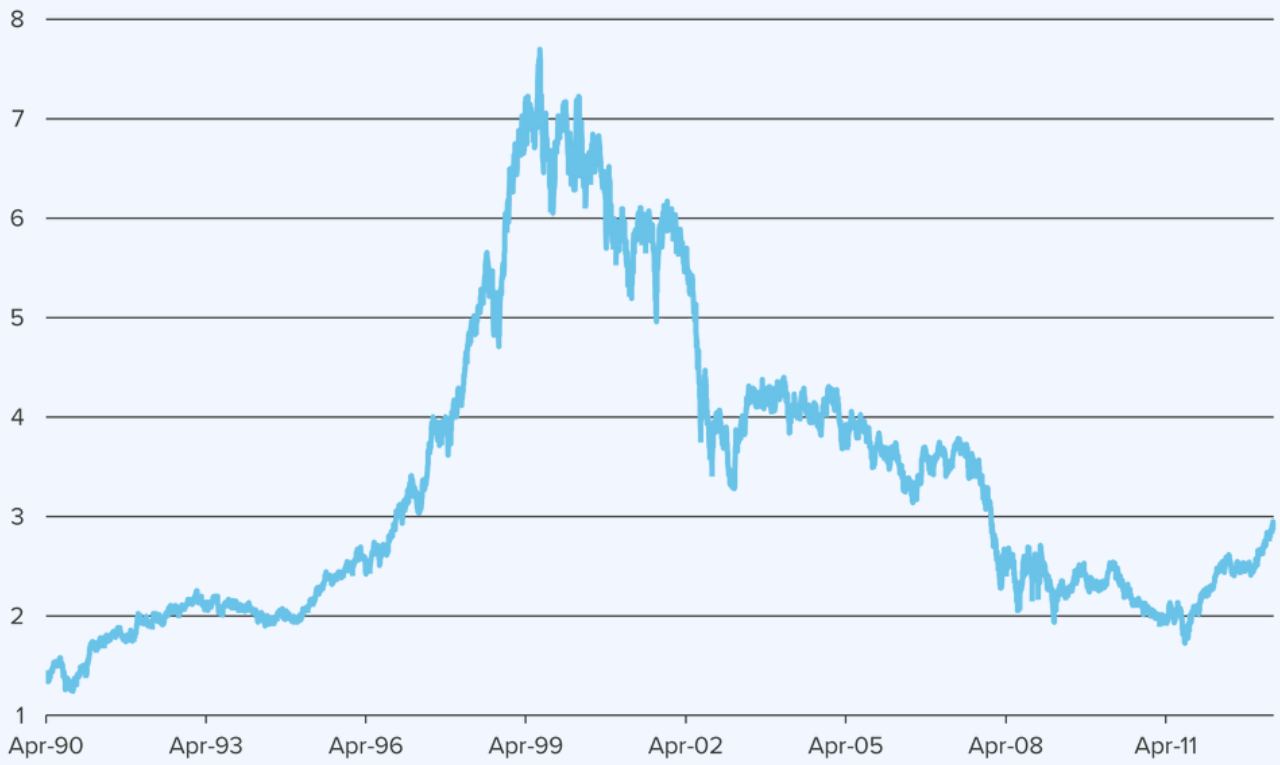
In my opinion, the great rotation has already started slowly but will accelerate as this new world of change becomes the routine. Exhibit 10 shows how cheap stocks are relative to corporate bonds looking at AAA yields divided by the SPX earnings yield. We are at similar levels to where this decline in rates and nominal GDP started in the early 1980s. Given the change in the global energy markets for reasons such as fracking and the move by China towards innovation and away from infrastructure, I expect commodities to be less of a headwind to growth and rising corporate profits. Exhibit 11 shows how cheap stocks appear relative to commodities (as depicted by the relationship of the SPX to the equal weighted CRB index). Over the last 15 years there has been a large investment made in commodities on the belief of inflation and China growth which I think needs to be reassessed. An important element of positioning into risk free assets is based on demographics. No matter how innovative technological advancements get in the future, it will not change the dynamic created by an aging population. I do think though that many of the assumptions made on retirement and saving will change as people begin to realize that life expectancy is likely to move higher through medical advancements. Actuarial assumptions are a key input into savings and retirement, both from a personal and governmental perspective, and are important when considering budgets and deficits. I think these assumptions of lifespan will need to change and such small changes will help a move to riskier assets. I do not expect this to be a fast process and there are many problems that come with increased technology but I think stocks will outperform bonds and commodities over the years to come until we start to see sentiment at the country level move higher.

Exhibit 10: AAA Yields vs. SPX Earnings Yield



Source: Bloomberg

Exhibit 11: SPX vs. CRB Index



Source: Bloomberg

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As my friend in the Air Force said, the impact of singularity will affect us more and more each day. It's obvious when it comes to changes in phones and computers. Technology has had a far more important impact beyond just the hardware though. In the Middle East, social media helped start the Arab Spring and led to the death of one of the most powerful and richest dictators on the planet in Khaddafi. Drone technology helped in the capture and death of Osama Bin Laden and twitter assisted with the capture of the recent Boston bombers. Social media forced the arrest of communist leader Bo Xilai in China. Fracking is helping to solve the global energy crisis. Twitter forced a new contract for the NFL referees and brought instant feedback leading to the firing of the Rutgers basketball coach. In the future, we will see dramatic innovations and impacts in healthcare, education and transportation. Nanotechnology will lead to new materials and advancements in water purification. 3D printing will impact the manufacturing process. Artificial intelligence will increase the speed in problem solving. Robotics will become more a fixture of modern day life. If I had to guess, the largest surprise in the market over the next 3-5 years will be that the bear market in bonds never occurs. The rapid increase in technological advancements continues to be critical in keeping inflation low. Maybe the bear market in bonds will end up being an underperformance to stocks. The critical part for an investor is that the future has become less certain due to exponential change. Making decisions today based on fears about future inflation, peak oil, future budgets, debt size, demographics, life expectancy etc. will likely lead to a surprise in outcome. For an investor or business leader, the key is to remain agile, nimble and flexible. These days it is dangerous to be a luddite. Adapt or Die.